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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/710,830	11/13/2000	Brian J. Minnis	PHB 34,414	5784

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EXAMINER	
WANG, TED M	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/710,830	MINNIS ET AL.	
	Examiner	Art Unit	
	Ted M Wang	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,7 and 9-12* is/are rejected.

7)☒ Claim(s) *8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 02/03/2005, with respect to the rejection(s)of claims 1-4 and 7-12 under 35 USC § 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of US 4,821,120 and US 6,078,799.

2. The indicated allowability of claim 6 is withdrawn in view of the newly discovered reference(s) to US 4,821,120. Rejections based on the newly cited reference(s) follow.

Claim Objections

3. Claims 2-4 and 6 are objected to because of the following informalities:

- In claims 2, line 6, insert --- wanted --- before "data", and line 10, change "image rejection" to --- harmonic ---.
- In claim 3, line 2, change "image rejection" to --- harmonic --- and change "filters" to --- for filtering ---, and line 4, insert --- wanted --- before "data".
- In claim 4, line 2, change "image rejection" to --- harmonic ---.
- In claim 6, line 5, insert --- wanted --- after "the".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomlinson (US 4,821,120) in view of Davie et al. (US 6,278,870).

- With regard claim 1, Tomlinson discloses a receiver (Fig.3) including a phase-quadrature IF filter (Fig.3 elements 38 and 50 and column 5 lines 44-50) that quadrature related low IF signals (Fig.3 element 50 and column 5 lines 44-50) are soft limited (Fig. 3 element 54) for adjusting the dynamic range of the quadrature related low IF signals (Fig.3 elements 48, 52, and 54 and column 5 lines 24-59) prior to being demodulated (Fig.3 element 58 and column 5 line 51 – column 6 line 17), and said receiver comprising, coupled to inputs of harmonic filtering means (Fig.3 element 56 and column 5 lines 59-60) and prior to demodulation (Fig.3 elements 54, 56, and 58, and column 5 lines 24-66), soft limiting amplifying means for adjusting the dynamic range of the quadrature related low IF signals (Fig.3 elements 48, 52, and 54 and column 5 lines 24-59) for entry into the harmonic filtering means (Fig.3 elements 54 and 56, and column 5 lines 55-60). It is inherent that a low pass filter is a harmonic filter, since low pass filter filters out all the frequency components higher than that of the cutoff frequency.

  Tomlinson discloses all of the subject matter as described above except for specifically teaching the receiver is a polyphase receiver.

However, Davie et al. teaches a polyphase receiver (Fig.1).

It is desirable to have a polyphase receiver in order to improve the image rejection (column 1 lines 44-48). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the receiver with polyphase filter as taught by Davie et al. in which, having polyphase filter, into Tomlinson's filter circuit so as to improve the image rejection.

- With regard claim 2, Tomlinson further discloses a receiver including a phase-quadrature IF filter for receiving a wanted data signal modulated on a carrier signal (Fig.3 element 30) and for producing quadrature related low IF signals (Fig.3 element 50 and column 5 lines 44-50), soft limiting means for compressing the dynamic range of the quadrature related low IF signals (Fig.3 elements 48, 52, and 54 and column 5 lines 24-59) and signal demodulation means for recovering the data signal (Fig.3 elements 54, 56, and 58, and column 5 lines 24-66). All other limitation can further be taught in claim 1. The explanation of all the limitation is already addressed in the above paragraph.
- With regard claim 3, Tomlinson further discloses wherein said harmonic filtering means for filtering the quadrature related low IF signals (Fig.3 elements 38 and 50 and column 5 lines 44-50), said receiver further including signal demodulation means for recovering the wanted data signal (Fig.3 elements 54, 56, and 58, and column 5 lines 24-66).

- With regard claim 4, Tomlinson discloses all of the subject matter as described above except for specifically teaching the harmonic filtering means comprises polyphase filtering means.

  However, Davie et al. teaches a polyphase filtering means (Fig.1 element 24, Abstract lines 3-5, and column 2 lines 24-39).

  It is desirable to have a polyphase filter in order to improve the image rejection (column 1 lines 44-48). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include the polyphase filter as taught by Davie et al. in which, having polyphase filter, into Tomlinson's filter circuit so as to improve the image rejection.

- With regard claim 6, which is a receiver claim related to claim 2, all other limitation is contained in claim 2. The explanation of all the limitation is already addressed in the above paragraph.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomlinson (US 4,821,120) and Davie et al. (US 6,278,870) as applied to claim 2 above, and further in view of Durvaux et al. (US 5,703,910).

- With regard claim 7, Tomlinson and Davie et al. disclose all of the subject matter as described above except for specifically teaching that the signal demodulation comprises a polyphase discriminator.

  However, Durvaux et al. teaches the signal demodulation comprises a polyphase discriminator (column 1 lines 34-55, column 2 lines 4-10, and column 4 lines 3-7).

It is desirable having a signal demodulation comprises a polyphase discriminator so as to improve the implementation complexity (column 4 lines 3-7). Therefore, It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a signal demodulation as taught by Durvaux et al. in which, the signal demodulation comprises a polyphase discriminator, into Tomlinson and Davies' demodulator circuit in order to improve the implementation complexity.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomlinson (US 4,821,120) and Davie et al. (US 6,278,870) as applied to claims 1 and 2 above, and further in view of Bijker et al. (US 5,404,589).

- With regard claim 9, Tomlinson and Davie et al. disclose all of the subject matter as described above except for specifically teaching that the polyphase receiver is integratable.

  However, Bijker et al. teaches that the polyphase receiver is integratable (column 3 lines 21-44).

  It is desirable that the polyphase receiver is integratable so as to reduce the product cost.

  It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a polyphase receiver as taught by Bijker et al. in which, the polyphase receiver is integratable, into Tomlinson and Davies' receiver in order to reduce the product cost.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tomlinson (US 4,821,120) and Davie et al. (US 6,278,870) as applied to claims 1 and 2 above, and further in view of McDowell et al. (US 6,078,799).

- With regard claim 10, Tomlinson and Davie et al. disclose all of the subject matter as described above except for specifically teaching an integrated transceiver.

  However, McDowell et al. teaches an integrated transceiver (Fig.1 elements 105 and 125, Fig.3A and 3B elements 305 and 315, and column 1 lines 21-43).

  It is desirable to have an integrated transceiver so as to reduce the product cost.

  It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include an integrated transceiver as taught by McDowell et al. in which, the transmitter and receiver are integratable, into Tomlinson and Davies' receiver in order to reduce the product cost.

9. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomlinson (US 4,821,120) and Davie et al. (US 6,278,870) as applied to claims 1 and 2 above, and further in view of Haartsen (US 6,081,697).

- With regard claim 11, Tomlinson and Davie et al. disclose all of the subject matter as described above except for specifically teaching amplifying means comprises separate, respective amplification means for said inputs.

  However, Haartsen et al. teaches the amplifying means comprises separate, respective amplification means for said inputs (Fig. 2 elements 250 and 295, column 5 lines 4-35, and Fig.3 elements 340 and 390).

It is desirable to include the limitation of amplifying means comprises separate, respective amplification means for said inputs so as to improve image rejection (column 2 lines 49-59).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include an polyphase receiver as taught by Haartsen et al. in which, the amplifying means comprises separate, respective amplification, into Tomlinson and Davies' receiver in order to improve the image rejection.

- With regard claim 12, all limitation is contained in claim 2 and 11. The explanation of all the limitation is already addressed in the above paragraph.

Allowable Subject Matter

10. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and if rewritten to overcome the objection(s) set forth in this Office action.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted M Wang
Examiner
Art Unit 2634

Ted M. Wang

SHUWANG LIU
PRIMARY EXAMINER